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PROPENSITY SCORE-ADJUSTED COMPARISON OF CLINICAL OUTCOMES FOLLOWING TRANSAPICAL VS. TRANSFEMORAL TRANSCATHETER AORTIC VALVE REPLACEMENT

Poster Contributions
Hall C
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Session Title: Valvular and Structural Heart Intervention
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Background: Transapical (TA-TAVR) vs. Transfemoral (TF-TAVR) approach for TAVR is largely dictated by adequacy of aortoiliac and femoral arteries to support large catheter access. There is limited data on direct comparison of clinical outcomes between the two approaches.

Method: 92 consecutive TAVR procedures using balloon-expandable Edwards SAPIEN valve performed in a single center between 01/2012 and 08/2013 were analyzed. Study endpoints were defined according to the revised VARC-2 criteria. Propensity score-adjusted analysis (adjusted for 20 variables) of adverse clinical outcomes at 30 days was performed.

Results: TA-TAVR was performed in 23 (25%) and TF-TAVR in 69 patients (75%). TA-TAVR was associated with increased risk for significant acute kidney injury (stage 2 or 3 defined by VARC-2 AKIN criteria) and conduction disturbance requiring permanent pacemaker. Thirty-day mortality, major bleeding, vascular complications, stroke/TIA, perivalvular aortic regurgitation, length of hospital stay, hours spent in ICU, and composite endpoint of death, major bleeding, vascular complication, stroke/TIA, myocardial infarction were not significantly different between the two approaches (see table).

Conclusion: In our observational registry, after propensity score adjustment, we found that TA-TAVR was a safe alternative for selected patients but was associated with significantly higher risk for significant AKI and conduction disturbance requiring pacemaker compared with TF-TAVR.

Unadjusted Outcomes in Transapical vs. Transfemoral TAVR

Outcomes	TA-TAVR (n=23)	TF-TAVR (n=69)	P-Value
Significant AKI (Stage 2 or 3)	4 (17.4%)	1 (1.5%)	0.01
Permanent Pacemaker	6 (26.0%)	4 (5.8%)	0.01
Major Bleeding	0	7 (10.1%)	0.18
Vascular Complication	0	1 (1.5%)	1.00
Perivalvular Aortic Regurgitation			0.25
• None	20 (87.0%)	47 (68.0%)	
• Mild	3 (13.0%)	20 (29.0%)	
• Moderate	0	2 (3.0%)	
30-day Mortality	0	1 (1.5%)	0.25
30-day Stroke/TIA	1 (4.6%)	0	1.00
Myocardial Infarction	0	0	NS
Length of Hospital Stay in Days, median (IQR)	5 (3)	5 (2)	0.07
Prolonged Hospital Stay (>5 days)	11 (47.8%)	19 (27.5%)	0.07
Time Spent in ICU in Hours, median (IQR)	78 (73)	57 (53)	0.10
Prolonged ICU Stay (>72 hours)	13 (56.5%)	25 (36.2%)	0.08
Composite Adverse Endpoint	1 (4.6%)	8 (11.6%)	0.44

Propensity Score-Adjusted Analysis of Adverse Outcomes

Outcomes	Odds Ratio (95% CI) (TA-TAVR vs. TF-TAVR)	P-Value
Significant AKI (Stage 2 or 3)	41.62 (2.86-605)	<0.01
Permanent Pacemaker	7.12 (1.15-43.87)	0.03
Perivalvular Aortic Regurgitation	0.37 (0.07-1.88)	0.23
Prolonged Hospital Stay (>5 days)	3.47 (0.90-13.28)	0.07
Prolonged ICU stay (>72 hours)	1.41 (0.40- 4.98)	0.59
Composite Adverse Endpoint	0.26 (0.02-3.59)	0.31

Propensity score model included age, gender, BMI, history of smoking, hypertension, diabetes mellitus, prior stroke, prior peripheral artery disease, prior carotid surgery or stent, estimated GFR using MDRD, on dialysis therapy prior to the procedure, left ventricular ejection fraction, total bilirubin prior to the procedure, prior CABG, prior other cardiac surgery, chronic lung disease, porcelain aorta, number of diseased coronary arteries, proximal LAD disease≥70%, and mitral valve disease.